UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,942	09/22/2003	Charles E. Polk JR.	710101.1170	1632

24504	7590	02/24/2006		

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EXAMINER
ABRAHAM, ESAW T

ART UNIT	PAPER NUMBER
2133	

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/667,942	POLK ET AL.
	Examiner	Art Unit	
	Esaw T. Abraham	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _22 September 2003_.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-16_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-16_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _22 September 2003_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _11/01/04, 09/22/03_.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims **1-16** are presented for examination.

Information Disclosure Statement

2.   The references listed in the information disclosure statement submitted on

11/01/04 and 09/22/03 have been considered by the examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U. S. C 112

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3.   Claims **1, 2, 6, 7, 10, 11, 12, 14 and 15** are rejected under 35 U.S.C. 112,

second paragraph, as being indefinite for failing to particularly point out and distinctly

claim the subject matter which applicant regards as the invention.

a) Claims **1, 6, 10, 11 and 14** recite, "said plurality of FEC codes transmitted

across different ones of the communication connections". The examiner asserts that it is

impossible to determine the intention of the previously quoted phrase since "different

ones of the communication connections" exhausts all possibilities that is the **different

ones** of the communication can be any communication connection. Clarification is

required.

b) Regarding claim **2, 7, 12, and 15** the phrase, "approximately m/n" (see line 2

of claims 2, 7, 12, and 15) renders the claims indefinite. The examiner would appreciate

if the applicant would clarify this matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set

forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere* CO., 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.

2.   Ascertaining the differences between the prior art and the claims at issue.

3.   Resolving the level of ordinary skill in the pertinent art.

4.   Considering objective evidence present in the application indicating obviousness

or nonobviousness.

4.   Claims **1-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Gibson et al. (U.S. PN; 6,922,806) in view of Matsumoto (U.S. PN: 6,522,731).

As per claims 1 and 14:

Gibson et al. teach or disclose a system for fast forward error correction coding includes a transmitting device having a data source and a forward error correction (FEC) encoder (FEC module) wherein the FEC encoder is coupled to the data source and is adapted to encode packetized data from the data source and a channelizer is coupled to the FEC encoder and is adapted to interleave the FEC encoded packetized data among a plurality of communication channels. The system also includes a receiving device adapted to receive the plurality of communication channels and the receiving device includes a dechannelizer adapted to de-interleave the plurality of communication channels and a FEC decoder (see col. 1, lines 53-65). Gibson et al. **do not explicitly teach** that the transmitter configured to interleave the FEC code. **However,** Matsumoto teaches that a transmitter configured to transmit scramble and forward error correction (FEC) (85, 86) and an interleaver (87) and further this configuration corresponds to the configuration on the receiver side (see col. 9, lines 43-52). **Therefore,** it would have been obvious to a person having an ordinary skill in the art at the time the invention was made to implement the teachings of Gibson et al. to include a configuration to interleave FEC codes as taught by Matsumoto. **This modification** would have been obvious because a person having ordinary skill in the art would have been motivated in order to increase the data amount of the transmission while at the same time reducing the attenuation amount of the telephone line providing the transmission path due to the reduced carrier frequency, thereby extending the communication distance and the transmission rate within the service area (see col. 19, lines 43-52).

As per claim 2:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim 1 including Gibson et al. disclosed an FEC encoder (FEC module) is coupled to the data source (transmitter) and is adapted to encode packetized data from the data source and a channelizer is coupled to the FEC encoder and is adapted to interleave the FEC encoded packetized data among a plurality of communication channels (see col. 1, lines 53-65).

As per claim 3:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim 1 including Gibson et al. teach an FEC encoder (FEC module) is coupled to the data source (transmitter) and is adapted to encode packetized data from the data source and a channelizer is coupled to the FEC encoder and is adapted to interleave the FEC encoded packetized data among a plurality of communication channels (see col. 1, lines 53-65). Further, Matsumoto teaches a data communication apparatus characterized in that the data communication is the ADSL data communication of discrete multitone modem scheme, and the apparatus is an ADSL communication modem (see col. 4, lines 26-30).

As per claims 4 and 5:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim 1 including Gibson et al. teach an FEC encoder (FEC module) is coupled to the data source (transmitter) and is adapted to encode packetized data from the data source and a channelizer is coupled to the FEC encoder and is adapted to interleave the FEC

encoded packetized data among a plurality of communication channels (networks)

((see col. 1, lines 53-65).

As per claims 6 and 11:

Gibson et al. teach or disclose a system for fast forward error correction coding

includes a transmitting device having a data source and a forward error correction

(FEC) encoder (FEC module) wherein the FEC encoder is coupled to the data source

and is adapted to encode packetized data from the data source and a channelizer is

coupled to the FEC encoder and is adapted to interleave the FEC encoded packetized

data among a plurality of communication channels. The system also includes a

receiving device adapted to receive the plurality of communication channels and the

receiving device includes a dechannelizer adapted to de-interleave the plurality of

communication channels and a FEC decoder (see col. 1, lines 53-65). Gibson et al.

do not explicitly teach that the transmitter configured to transmit the FEC code.

However, Matsumoto teaches that a transmitter configured to transmit scramble and

forward error correction (FEC) (85, 86) and an interleaver (87) and further this

configuration corresponds to the configuration on the receiver side (see col. 9, lines 43-

52). **Therefore,** it would have been obvious to a person having an ordinary skill in the

art at the time the invention was made to implement the teachings of Gibson et al. to

include a configuration to interleave FEC codes as taught by Matsumoto. **This**

modification would have been obvious because a person having ordinary skill in the

art would have been motivated in order to increase the data amount of the

transmission while at the same time reducing the attenuation amount of the telephone

line providing the transmission path due to the reduced carrier frequency, thereby

extending the communication distance and the transmission rate within the service

area (see col. 19, lines 43-52).

As per claim 7:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim 6

including Gibson et al. disclosed an FEC encoder (FEC module) is coupled to the data

source (transmitter) and is adapted to encode packetized data from the data source

and a channelizer is coupled to the FEC encoder and is adapted to interleave the FEC

encoded packetized data among a plurality of communication channels (see col. 1,

lines 53-65).

As per claim 8:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim 6

including Gibson et al. teach an FEC encoder (FEC module) is coupled to the data

source (transmitter) and is adapted to encode packetized data from the data source

and a channelizer is coupled to the FEC encoder and is adapted to interleave the FEC

encoded packetized data among a plurality of communication channels (see col. 1,

lines 53-65). Further, Matsumoto teaches a data communication apparatus

characterized in that the data communication is the ADSL data communication of

discrete multitone modem scheme, and the apparatus is an ADSL communication

modem (see col. 4, lines 26-30).

As per claim 9:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim 6

including Gibson et al. teach an FEC encoder (FEC module) is coupled to the data

source (transmitter) and is adapted to encode packetized data from the data source

and a channelizer is coupled to the FEC encoder and is adapted to interleave the FEC

encoded packetized data among a plurality of communication channels (networks)

((see col. 1, lines 53-65).

As per claim 10:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim 6

and 11 including Matsumoto teach a transmitter side is so configured that,are scramble

and forward error correction (FEC) (85 and 86) an interleaver or a memory (87) to store

and interleave FEC codes (see col. 9, lines 43-52).

As per claim 12:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim

11 including Gibson et al. disclosed an FEC encoder (FEC module) is coupled to the

data source (transmitter) and is adapted to encode packetized data from the data

source and a channelizer is coupled to the FEC encoder and is adapted to interleave

the FEC encoded packetized data among a plurality of communication channels (see

col. 1, lines 53-65).

As per claim 13:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim

11 including Gibson et al. teach an FEC encoder (FEC module) is coupled to the data

source (transmitter) and is adapted to encode packetized data from the data source

and a channelizer is coupled to the FEC encoder and is adapted to interleave the FEC

encoded packetized data among a plurality of communication channels (see col. 1,

lines 53-65). Further, Matsumoto teaches a data communication apparatus

characterized in that the data communication is the ADSL data communication of

discrete multitone modem scheme, and the apparatus is an ADSL communication

modem (see col. 4, lines 26-30).

As per claim 15:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim

11 including Gibson et al. disclosed an FEC encoder (FEC module) is coupled to the

data source (transmitter) and is adapted to encode packetized data from the data

source and a channelizer is coupled to the FEC encoder and is adapted to interleave

the FEC encoded packetized data among a plurality of communication channels (see

col. 1, lines 53-65).

As per claim 16:

Gibson et al. in view of Matsumoto teach all the subject matter claimed in claim

11 including Gibson et al. teach an FEC encoder (FEC module) is coupled to the data

source (transmitter) and is adapted to encode packetized data from the data source

and a channelizer is coupled to the FEC encoder and is adapted to interleave the FEC

encoded packetized data among a plurality of communication channels (see col. 1,

lines 53-65). Further, Matsumoto teaches a data communication apparatus

characterized in that the data communication is the ADSL data communication of

discrete multitone modem scheme, and the apparatus is an ADSL communication

modem (see col. 4, lines 26-30).

Conclusion

5.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

        US PN: 6,757,53   English, Sean

        US PN: 6,829,741   khansari et al.

        US PN: 6,865,190   Abbas et al.

        US PN: 6,742,15   Bengough, Peter

        US PN: 6,647,070   Shalvi et al.

        US PN: 6,971,057   Delvaux et al.

6.   Any inquiry concerning this communication or earlier communication from the

examiner should be directed to Esaw Abraham whose telephone number is (571) 272-

3812. The examiner can normally be reached on M-F 8-5.

        If attempts to reach the examiner by telephone are successful, the examiner's

supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone numbers

for the organization where this application or proceeding is assigned are (571) 273-8300

for regular communications and (571) 273-8300 for after final communications.

        Information regarding the status of an Application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or PUBLIC PAIR. Status

information for unpublished applications is available through Private Pair only. For more

information about the PAIR system, see http://pair-direct.uspto.gov. Should you have

questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

Esaw Abraham

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